

## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>5</sup> : <b>H02G 11/02, B65H 75/40</b>	<b>A1</b>	(11) International Publication Number: <b>WO 94/21019</b> (43) International Publication Date: 15 September 1994 (15.09.94)
--	-----------	--

(21) International Application Number: PCT/GB94/00438  
(22) International Filing Date: 7 March 1994 (07.03.94)  
(30) Priority Data:  
9304631.6 6 March 1993 (06.03.93) GB

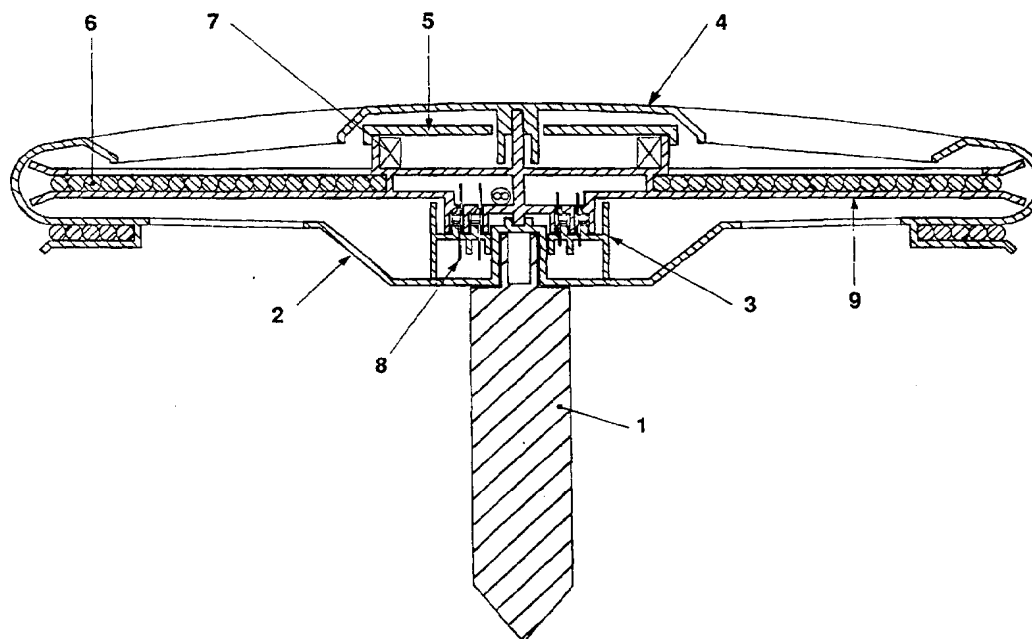
(71)(72) Applicant and Inventor: CORCORAN, Michael  
[GB/GB]; 40A Nelson Park Industrial Estate, Cramlington,  
Northumberland NE23 9DH (GB).

(74) Agent: PACITTI, Pierpaolo, A., M., E.; Murgitroyd and  
Company, Chartered Patent Agents, 373 Scotland Street,  
Glasgow G5 8QA (GB).

(81) Designated States: AT, AU, BB, BG, BR, BY, CA, CH, CN,  
CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, KZ, LK, LU,  
LV, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD,  
SE, SK, UA, US, UZ, VN, European patent (AT, BE, CH,  
DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE),  
OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR,  
NE, SN, TD, TG).

**Published**  
*With international search report.*

(54) Title: RECOIL CABLE REEL



## (57) Abstract

A recoil cable reel that can be fixed to grass by means of a stake (1) the cable (6) is re-wound on to the drum (9) repeatedly by means of a spring (7), whilst using tools in the garden environment.

*FOR THE PURPOSES OF INFORMATION ONLY*

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	GB	United Kingdom	MR	Mauritania
AU	Australia	GE	Georgia	MW	Malawi
BB	Barbados	GN	Guinea	NE	Niger
BE	Belgium	GR	Greece	NL	Netherlands
BF	Burkina Faso	HU	Hungary	NO	Norway
BG	Bulgaria	IE	Ireland	NZ	New Zealand
BJ	Benin	IT	Italy	PL	Poland
BR	Brazil	JP	Japan	PT	Portugal
BY	Belarus	KE	Kenya	RO	Romania
CA	Canada	KG	Kyrgyzstan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	KZ	Kazakhstan	SI	Slovenia
CI	Côte d'Ivoire	LI	Liechtenstein	SK	Slovakia
CM	Cameroon	LK	Sri Lanka	SN	Senegal
CN	China	LU	Luxembourg	TD	Chad
CS	Czechoslovakia	LV	Latvia	TG	Togo
CZ	Czech Republic	MC	Monaco	TJ	Tajikistan
DE	Germany	MD	Republic of Moldova	TT	Trinidad and Tobago
DK	Denmark	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	US	United States of America
FI	Finland	MN	Mongolia	UZ	Uzbekistan
FR	France			VN	Viet Nam
GA	Gabon				

1     "Recoil Cable Reel"

2

3     This invention relates to a recoil cable reel.

4

5     Cable reels are well known in the electrical accessory  
6     market, they are used to contain usually 10 amp cable  
7     on a drum with a framework around the drum forming a  
8     stand and a handle. Usually these products have a  
9     handle to wind the electrical cable back onto the drum.  
10    Retractable cable reels are used in vacuum cleaners to  
11    recover the cable back onto the drum by means of a  
12    spring.

13

14    One problem with winding, for example, 15 meters of  
15    1 mm square 10 amp cable on to a drum were the cables  
16    are repeatedly wrapped over and around each other when  
17    the cable is loaded, is that the cable can not be used  
18    in its wound state because the cable will over heat due  
19    mainly to insufficient ventilation.

20

21    According to the present invention there is provided a  
22    recoil cable reel comprising a rotatable drum that will  
23    only accept one layer of cable per revolution.

24

1 Preferably, the drum is well ventilated both top and  
2 bottom so allowing the heat generated in the cable to  
3 be dissipated to the air so allowing the reel to be  
4 used when fully wound.

5

6 The cable reel may be used with power tools to enable  
7 the user of said tools to move freely about the  
8 workshop home or garden.

9

10 The drum may be fixed to a coil spring. The advantage  
11 gained by making the drum flat and thin as well as  
12 having a very long spring is that the cable is very  
13 easy to pull away from the reel at the start point due  
14 to the mechanical advantage of the very large diameter  
15 drum. At this point any drag on the cable is low; at  
16 full extension the cable can still be held comfortably  
17 by the hand, ie a maximum force equivalent to about 1  
18 to 3 kilos. When the cable is wound back the power in  
19 the spring is at a maximum and the drum is at a minimum  
20 diameter so giving an easy pull back overcoming the  
21 increased friction of the length of cable being pulled  
22 over the ground.

23

24 Preferably, the drum is attached to running electrical  
25 contacts so supplying power between moving drum and  
26 fixed base.

27

28 When used in a garden the cable reel may be secured by  
29 means of a stake.

30

31 An embodiment of the invention will now be described,  
32 by way of example, with reference to the accompanying  
33 drawings in which:

34

35 Fig. 1 shows a cross-section through the device;

1 Fig. 2 shows a perspective view of the recoil cable  
2 reel; and

3 Fig. 3 shows an exploded assembly.

4  
5 Figs. 1 and 3 show an embodiment of a recoil cable reel  
6 according to the present invention. The device  
7 comprises a drum 9 which can rotate about a stake 1  
8 which would, in use be driven into the ground in order  
9 to secure the reel. Cable 6 may be wound onto the drum  
10 and the drum is configured so that each rotation of the  
11 drum winds or unwinds on a single layer of cable 6 onto  
12 the drum 9.

13  
14 The drum 9 is mounted upon an electrical connector  
15 block 3 which is attached to the stake 1 and includes  
16 running electrical contacts 8 so that power can be  
17 supplied between the stationary elements of the reel  
18 and the drum.

19  
20 The drum is mounted in a casing comprising a drum case  
21 base 2 which is attached to the stake 1 and protects  
22 the drum from contacting the surface upon which the  
23 device rests, and a drum case top 4 which also protects  
24 the drum 9.

25  
26 A coil spring 7 is provided. This provides a force to  
27 the drum 9 tending to keep the cable 6 wound on the  
28 drum 9, and enabling the cable reel to retract the  
29 cable when the tension of the cable 6 not wound onto  
30 the drum is sufficiently small. The spring 7 is  
31 covered by a spring cover 5 which is provided below the  
32 drum case top 4.

33  
34 The drum 9 is essentially cylindrical and has a  
35 relatively large diameter but a small axial length.

1 The axial length of the drum is of the order of the  
2 diameter of the cable to be wound on the drum and is  
3 less than twice the diameter of the cable. Thus, when  
4 the cable 6 is wound onto the drum 9 a single layer of  
5 cable is wound onto the drum 9 with each revolution of  
6 the drum 9.

7

8 Figure 2 shows a perspective view of an embodiment of a  
9 cable reel according to the present invention.

10

11 The drum 9 and drum case top 4 is shaped so as to allow  
12 good ventilation of the cable 6.

13

## 1 CLAIMS

2

3 1 A recoil cable reel comprising a rotatable drum on  
4 which cable may be wound wherein the drum is  
5 configured to wind or unwind a single layer of  
6 cable with each revolution of said drum.

7

8 2 A recoil cable reel as claimed in Claim 1  
9 comprising a stake which can be used to secure  
10 said recoil cable reel.

11

12 3 A recoil cable reel as claimed in either of the  
13 preceding Claims wherein the drum is provided with  
14 perforations or apertures to allow the cable to be  
15 ventilated.

16

17 4 A recoil cable reel as claimed in any preceding  
18 Claim wherein the cable may have current flowing  
19 while said cable is wound on and off the drum.

20

21 5 A recoil cable reel as claimed in any preceding  
22 Claim wherein there is a spring to power the  
23 recoil action of the drum.

24

25 6 A recoil cable reel as claimed in Claim 5 wherein  
26 the spring is a coil spring.

27

28 7 A recoil cable reel as Claimed in any preceding  
29 Claim wherein the current is supplied to the drum  
30 by sliding contacts.

31

32 8 A recoil cable reel, comprising a drum, that can  
33 be secured to the ground by means of a stake,  
34 wherein there is provided a spring means to rewind  
35 cable onto the drum, thus taking up slack in the

1 cable, whilst allowing the cable to be unwound  
2 from the drum by pulling upon the cable.

3

4 9 A recoil cable reel as in Claim 1 or 2 where in  
5 the purpose is to stop a user from cutting the  
6 cable of a electric garden mower that the reel is  
7 attached to by means of the reel holding the cable  
8 away from the mower by means of the sprung action  
9 of the reel.

10

11 10 A recoil cable reel substantially as described  
12 herein with reference to Figs. 1-3 of the  
13 accompanying drawings.

14

15



1 / 3

Fig 1

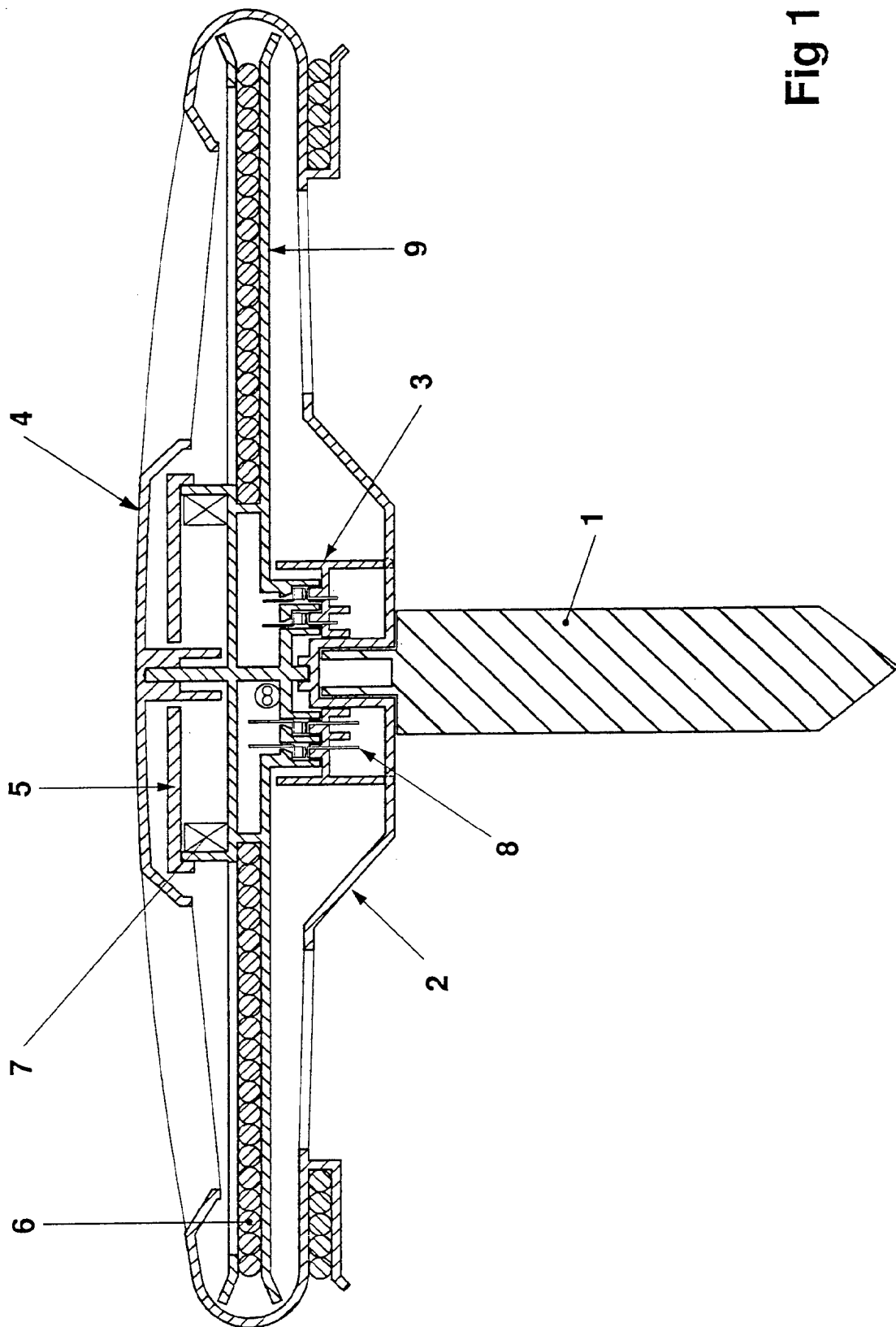
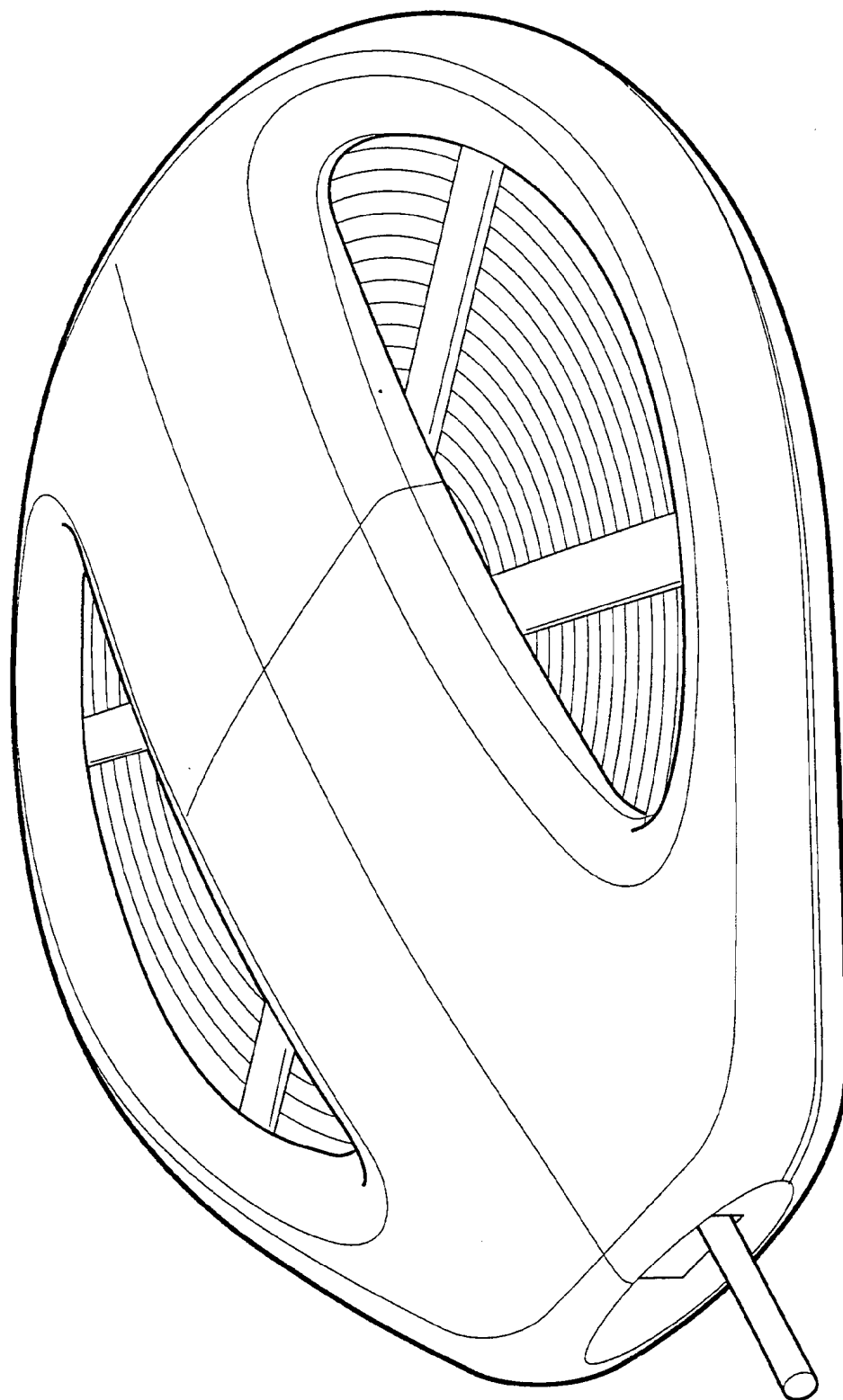


Fig 2



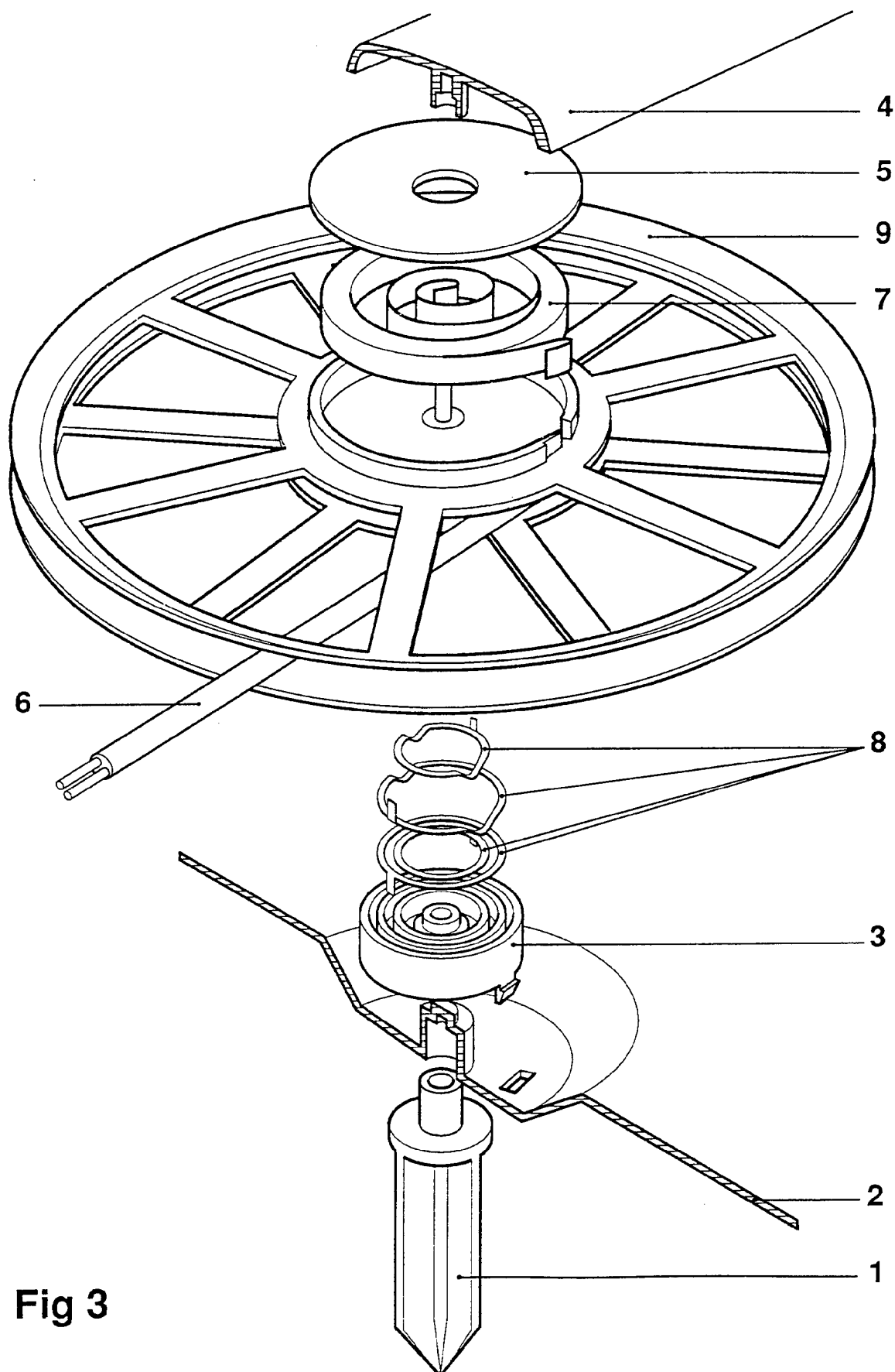


Fig 3

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/GB 94/00438

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 5 H02G11/02 B65H75/40

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 5 H02G B65H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE,A,26 20 924 (DESCO-WERKE SEGER & ANGERMEYER) 24 November 1977	1,3,5,10
A	see page 11, line 1 - line 14; figures 3-5 ---	6,8
X	US,A,2 387 556 (R.J. BAUNACH) 23 October 1945	1,4-7,10
A	see page 1, left column, line 40 - page 2, left column, line 25 see page 2, left column, line 48 - line 58; figures 2,5 ---	8
X	FR,A,1 386 324 (J. LE GALL) 14 December 1964	1,4-7,10
A	see page 3, right column, paragraph 4 - page 4, left column, paragraph 1; figure 8 ---	8
	--- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"I" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

24 June 1994

Date of mailing of the international search report

29.06.94

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+ 31-70) 340-3016

Authorized officer

Lommel, A

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/GB 94/00438

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE,C,836 519 (A. HIMMLER ET AL.) 15 April 1952 see page 2, line 17 - line 43; figures 1-3 ---	1,4-7,10
A	GB,A,2 239 648 (A. CARTLEDGE) 10 July 1991 see abstract see page 7, line 10 - page 18, line 13; figures 1-5 ---	1,2,4-10
A	DE,A,32 19 162 (E. SCHUMM) 15 December 1983 see page 15, line 4 - line 13; figures 1,2 -----	2,8

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 94/00438

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE-A-2620924	24-11-77	NL-A- 7705139	15-11-77
US-A-2387556		NONE	
FR-A-1386324		NONE	
DE-C-836519		NONE	
GB-A-2239648	10-07-91	NONE	
DE-A-3219162	15-12-83	NONE	